



## Coastal Adaptation to Climate Change

### Background

Climate change and variability are affecting the National Park Service's 84 ocean and coastal parks and over 12,000 miles of shoreline. These effects include rising sea levels, lowering Great Lakes water levels, changing storm patterns, increasing ocean acidity and melting permafrost. These processes and other coastal hazards are threatening parks' cultural and natural resources, infrastructure, and public recreational opportunities. NPS currently lacks information needed to adequately understand the full range of these effects on park resources, visitor use, and operations. To effectively cope with these issues, park managers require an expanded array of decision-support tools and conservation strategies that can be implemented in an adaptive management framework.

The NPS works to identify and meet the needs for scientific information, decision support tools, and assessments to facilitate coastal adaptation to climate change.

### Approach

The NPS is working with scientists and other partners to develop landscape- and ecosystem-scale adaptation strategies that protect coastal resources and promote their long-term resilience and sustainability. The science-based and collaborative approach for coastal adaptation draws on the goals and objectives outlined in the servicewide Climate Change Response Strategy released in September 2010. Development of these coastal adaptation strategies entails:

- Support scientific research, inventory, and monitoring activities to gather data and improve understanding of climate and weather phenomena affecting coastal parks.
- Conduct risk and vulnerability assessments to identify specific impacts of climate and other stressors on park resources and operations.
- Develop guidance and tools to help NPS managers understand impacts and take actions that will increase resource resilience to change, including actions that are compatible with the dynamic coastal environment.
- Develop interpretive materials to educate the public about the need for comprehensive, swift, and effective measures that will help the NPS conserve ocean and coastal park resources for future generations.

Adaptation in the coastal environment involves cultural and natural resources as well as historic, recreational, and transportation facilities. In undertaking this work, the NPS is leveraging servicewide assets and programs and collaborating with other agencies, jurisdictions, and external partners.



Eroding coastlines and melting permafrost damage facilities at Bering Landbridge National Preserve.

### Status and Next Steps

Specific ongoing activities include:

- Vulnerability assessments for sea- and lake-level changes published for 23 parks through a collaborative project with the USGS, who is now developing decision-support tools at Assateague Island National Seashore: <http://wh.er.usgs.gov/slr/>
- A collaborative project with NOAA's Coastal Services Center provides coastal-oriented climate science and adaptation expertise and one year of full-time support from Dr. Maria Honeycutt.
- USGS is evaluating coastal hazards from severe storms at Golden Gate National Recreation Area and Point Reyes National Seashore.
- Building on the above efforts, NPS is developing expanded sea-level and lake-level change information and guidance for park managers to identify and manage sensitive resources and facilities.

### More Information

**Rebecca Beavers, Ph.D.**

Coastal Geologist  
Geologic Resources Division

ph: (303) 987-6945  
email: [Rebecca\\_Beavers@nps.gov](mailto:Rebecca_Beavers@nps.gov)

**Maria Honeycutt, Ph.D.**

Coastal Climate Adaptation Specialist  
Climate Change Response Program

ph: (202) 513-7256  
email: [Maria\\_Honeycutt@partner.nps.gov](mailto:Maria_Honeycutt@partner.nps.gov)

**Cat Hawkins Hoffman**

National Adaptation Coordinator  
Climate Change Response Program

ph: (970) 225-3567  
email: [Cat\\_Hawkins\\_Hoffman@nps.gov](mailto:Cat_Hawkins_Hoffman@nps.gov)

Climate Change Response Program:

<http://www.nps.gov/climatechange>